Title: NM Universities, Partnership Discussion

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# NM Universities

# Partnership Discussion

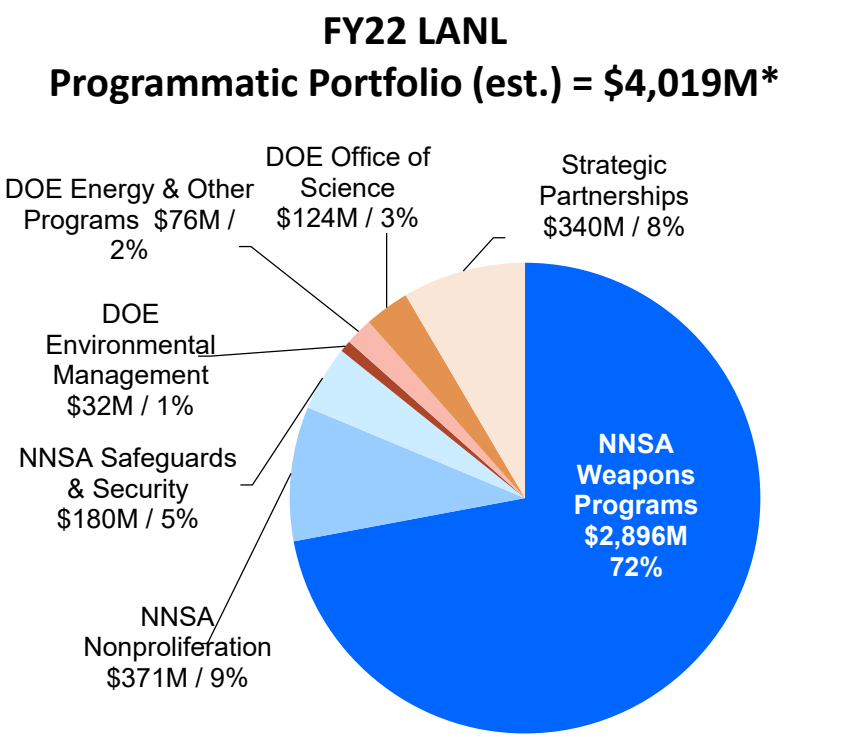
Nan Sauer
Partnerships and Pipeline Office

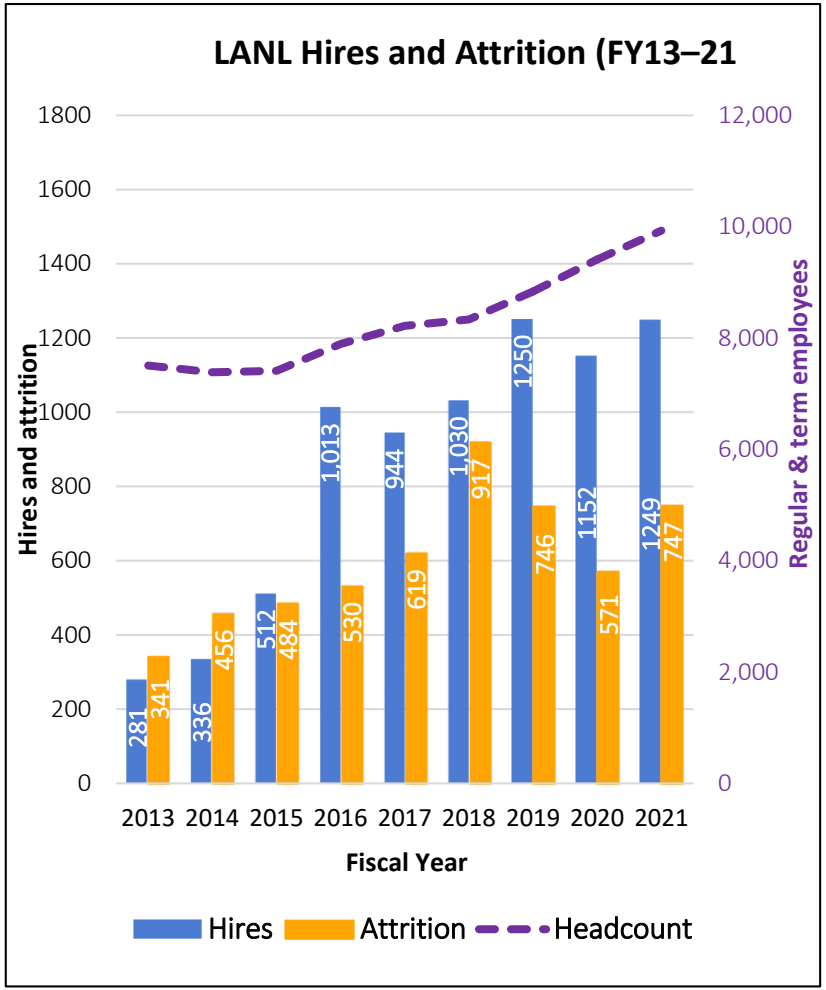
December 7, 2021

# Outline

- LANL Growth
- Pipeline and workforce partnerships
- Research engagement and emerging opportunities

# LANL has grown…dramatically




***+$1.2B in 3 years***

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# LANL Impacts

| | |
|---|---|
| $3.7B | Laboratory funding est. for FY21 |
| $1.3B | Est. salaries for LANL employees in FY20 |
| $486M | FY20 contracts with NM businesses |
| $102M | Payment of NMGRT in 2020 |
| 24,169 | Jobs LANL directly and indirectly creates in the state |
| 1,250 | Hires in FY21 |
| 41% | Current employees hired from NM |
| ~75% | New hires in the past year who hailed from NM |

*LANL and Española-based Performance Maintenance Inc. (PMI) sign a 5-year subcontract for janitorial services and supplies. PMI recently won a DOE Small Business of the Year Award for its efforts.*

LANL will hire thousands of new staff over the next 5 years

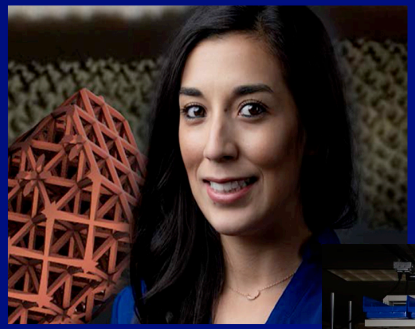
# LANL mechanisms for university engagement

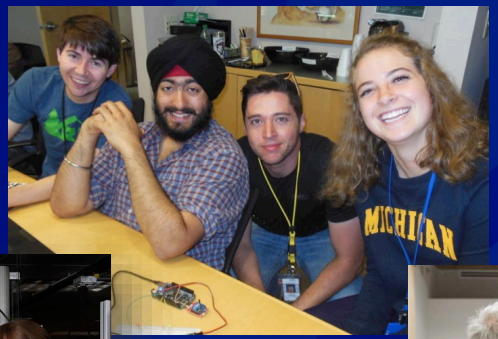
What are some of the key ways that do we work together?

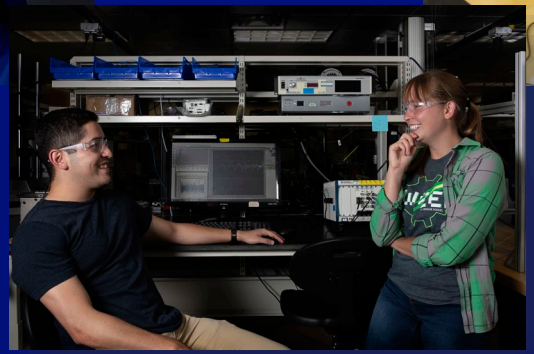
- Student and Postdoc Programs
- Workforce Education and Training
- University Subcontracts, MOUs and Institutional agreement
- Collaborative Research and Federally-Funded Initiatives
- Enabling workshops, conferences, user facilities…..

# Workforce  and Pipeline Programs

Its about the people…..





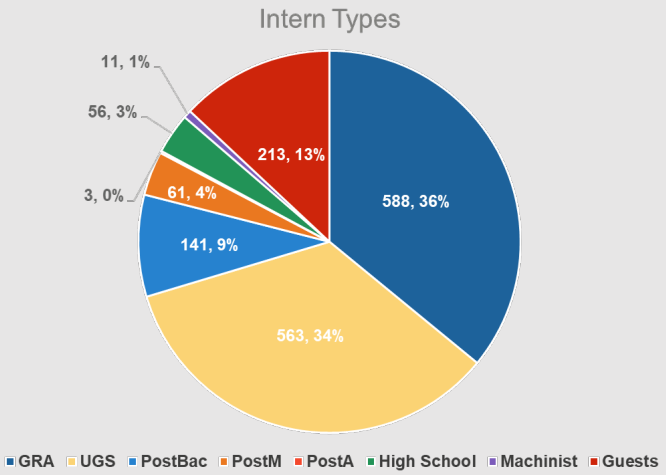
# The student program: a new normal with a hybrid approach

**2021 Pipeline Programs: 1650 students and 500 Postdocs**

- Hybrid student program successfully realized in 2021
- PD Program remained constant during COVID
- 65% of students worked on site, 35% across the nation
- Students are able to work remotely with LANL during their academic year – a growing opportunity for partnerships

**Percentage of total LANL population who were former students or postdocs**

| 36% | 61% | 33% |
|---|---|---|
| All LANL employees (Reg, TRMA) | All R&D scientists & engineers | Managers |




~20% from NM Schools

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# Workforce Programs leverage LANL partnership mechanisms

## MBA Program with NMSU

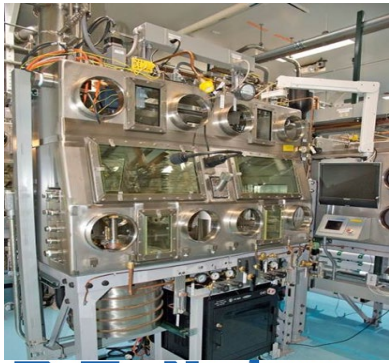
- Decadal programs focused on current LANL employees working Business/Finance
- Feeder programs for many operational areas
- Employees use *Tuition Reimbursement Program*

## Associate of Applied Science in Nuclear Enterprise Science and Technology with UNM-LA

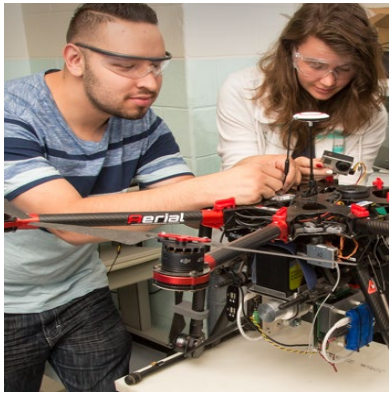
- Training program for current LANL employees working in nuclear facilities
- Collaboratively designed curriculum taught by LANL experts with UNM-LA *Joint Faculty Appointments*
- One-year Academic Certificate can ladder to an AAS degree

## Bachelor's of Science in Mechanical Engineering with UNM

- Targets current LANL staff through tuition reimbursement and student interns
- Program brings in-person upper division ME courses and supporting laboratories to the UNM-LA campus. Three upper division classes are offered in Fall of 2021 coordinated by a *Joint Faculty from LANL*



Nuclear Enterprise
SCIENCE & TECHNOLOGY



# Emerging Workforce Partnerships and needs

## Increasing our educational engagement to support workforce growth

### NNSA Plutonium Manufacturing Workforce Development Program for Minority Serving Institutions

- FY21 Energy and Water language directed funding for LANL and SRNS pit production workforce development and training using historically Black Colleges and Universities, Hispanic Serving Institutions and Tribal Colleges near sites
- These efforts will start in FY 22

### Procurement Specialists

- Targets NM graduates in business and Supply chain management

### Project Management and Project Controls to support Lab Missions

- Support for our expanding missions and site transformation
- Looking for individuals with Certificates, Bachelors and MS programs

### IS&T from desktop support to cybersecurity

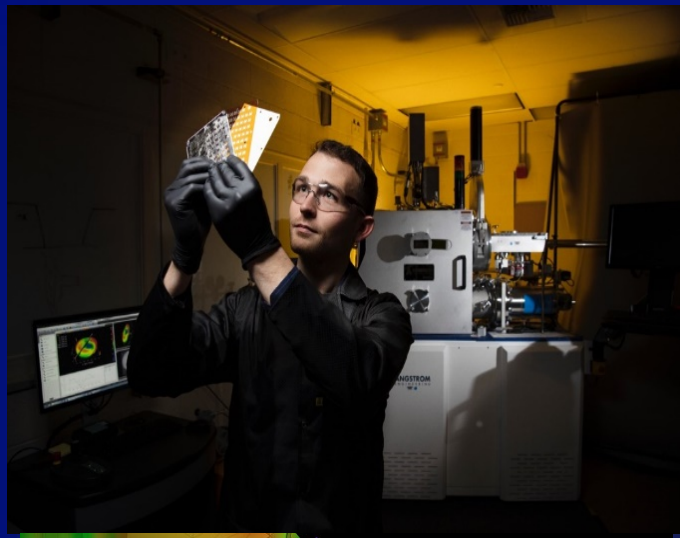
- Foundational to our operational IS&T at LANL
- Cross-cuts multiple line organizations and programs

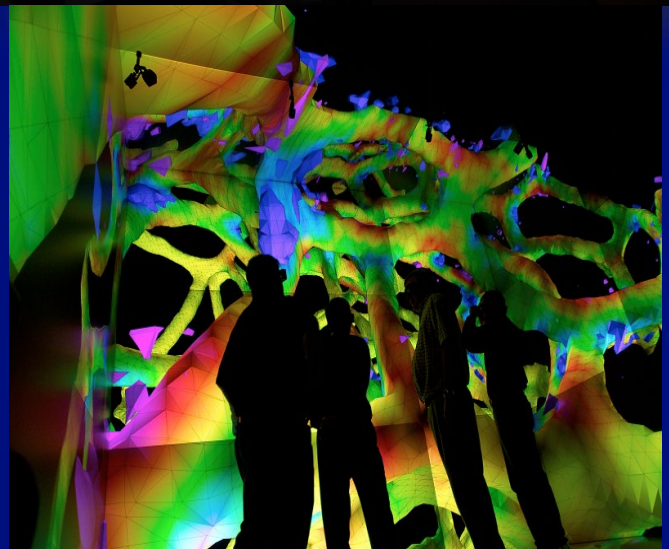
# Collaborative Research

Historically LANL has engaged the NM Universities in a wide range of disciplines and in all program areas:

- Energy - including fossil, geothermal, biofuels and solar
- Climate – modeling and experimental research focused on water resources/snowpack and wildfire modeling
- LANSCE/user facility partnerships in materials science nuclear science and isotope production
- High explosives research and materials manufacturing
- Geophysics, seismic behavior & Nuclear Detonation Detection
- Computers Science and IS&T broadly
- National security biology including disease modeling, detection and genomics

*Where do you want to go from here?*



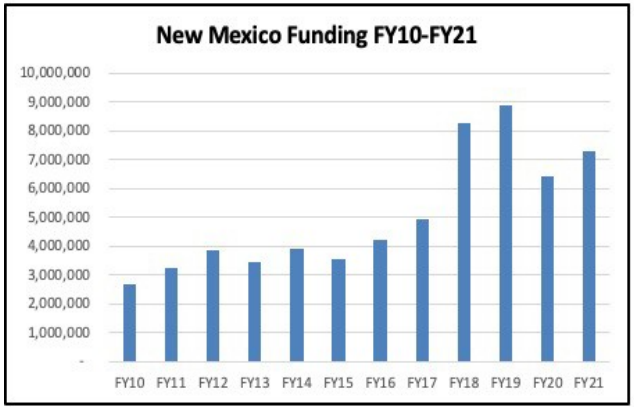


# University R&D Subcontracts FY21 funding distribution for New Mexico

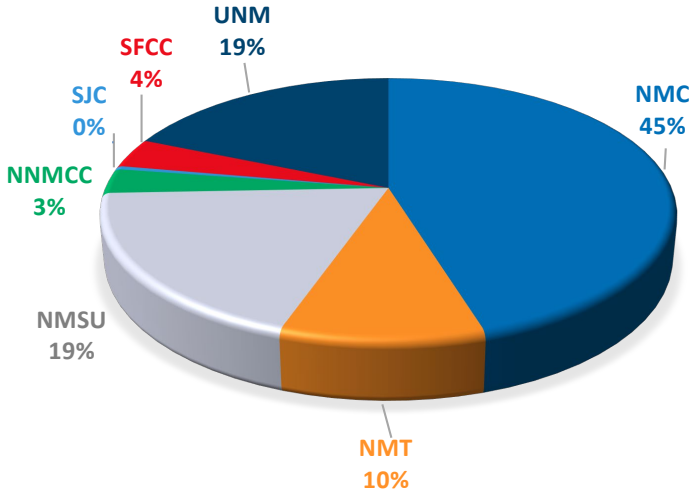
*Total NM University R&D Subcontract Funding: $**7,304,793***

## LANL funding by State: New Mexico ranked #1

- **13.6**% funding increase from FY20
- **52** total subcontracts
- **13.5**% increase in average subcontract dollar amount ($124K to $141K)




## FY21 New Mexico funding distribution




**NMC**: New Mexico Consortium
**NMT**: New Mexico Institute of Mining and Technology
**NMSU**: New Mexico State University
**NNMCC**: Northern New Mexico Community College
**SFCC**: Santa Fe Community College
**SJC**: San Juan College
**UNM**: University of New Mexico

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# Place-based, energy transition and mission growth opportunities

**Place- Based: Focused on enhancing national laboratories engagement in Energy/Climate work across their regions:**

- DOE-driven multi-lab consortia
- Individual national laboratory partnerships with Universities and businesses
- Externally driven collaborations in which national laboratories play a key role, which can be driven by events or crises, or by state or local government

**National Security Mission Growth:**

- Materials and manufacuturing capabilities
- Global Security programs including space, nuclear detection, cybersecurity
- Science enabled technology areas such as Quantum information and materials, AI, US competitiveness in manufacturing, health and energy

# I-WEST
# Intermountain West Energy Sustainability & Transitions

*Pathways Toward a Carbon-neutral Intermountain West*

A hallmark of the I-WEST initiative is its place-based approach, which emphasizes the importance of developing an energy-transition roadmap based on regionally relevant options.

This will be achieved by:

1. building a coalition of stakeholders from across the region who are knowledgeable of the unique challenges, needs, opportunities, and priorities of the region;
2. identifying technologies that leverage and/or address the unique geographical and environmental attributes of the region; and
3. integrating environmental and social justice into the roadmap so that community needs, goals, expectations and concerns are addressed.


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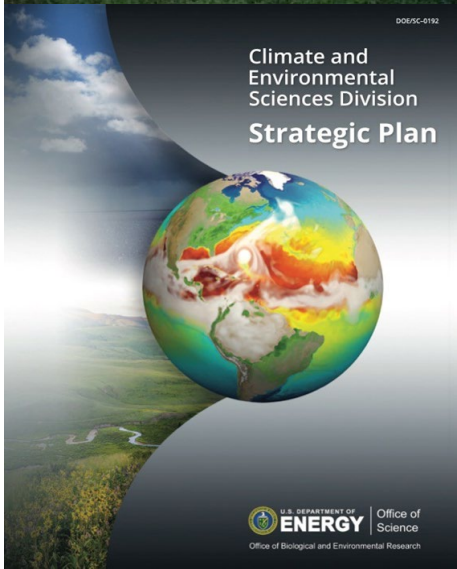
# Northern Rio Grande Corridor Collaborative

- The NRGCC objectives can be enabled using these same mechanisms that we have been discussing
- This collaborative represents a unique opportunity to promote both education and research, and to foster economic development
- The focus on nascent opportunities in the broad areas of Climate, Energy, Carbon Management and National Security build upon strengths at all the partner institutions.
- In partnership, we can foster broader STEM regional educational opportunities for undergraduate and graduate students from underserved communities and in doing so impact workforce for energy and national security.



# How do we build on our existing entrepreneurial relationships to foster new opportunities in NRGCC and Energy Transition efforts?


Provides New Mexico small businesses addressing technical challenges access to unique expertise & capabilities of Los Alamos & Sandia national labs in the form of lab hours up to $40K in assistance for businesses in rural counties and $20K for those in urban counties.


Addresses the gap of knowledge transfer and technology advancement when a New Mexico business has a license to a laboratory technology or is engaged in a research partnership. It gives these New Mexico businesses the ability to leverage research and technology development from Los Alamos and Sandia national laboratories to expedite product development.


Supports external innovators to advance their technology into a first product and build a company in New Mexico that addresses national security challenges in the areas of:

- Advanced Material
- AI & Advanced Computing
- Biotechnology
- Space Systems

# Organizations and tools that enable interactions with LANL

## Partnerships and Pipeline Office (PPO)

- Student Program Office
- Postdoc Program Office
- National Security Education Center and the Strategic Centers and NMC Office
- Feynman Center for Innovation

## Opportunities for students, faculty and staff

- Student internships & Fellowships
- NSEC Summer Schools
- Postdoc positions
- Faculty/Student Guest Agreements
- Joint Appointments for faculty/staff
- Limited Term Visiting Staff
- Consultant Agreements
- Laboratory and Fellow Associates

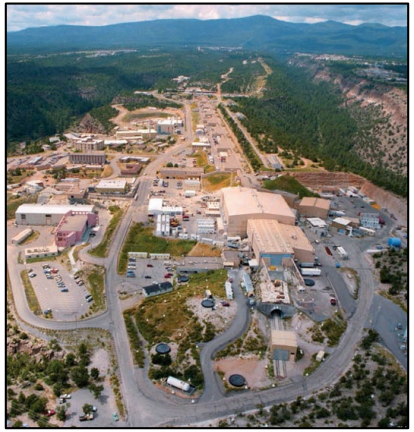
## Mechanisms and collaborative tools

- University Contracts
- Institutional Agreements
- Access to User Facilities
  - CINT
  - LANSCE
  - High Field Magnet Lab
- Conferences and Workshops
- Informal intellectual collaborations
- Joint Proposals to sponsors
- Lab Contributions to Joint Research Programs
- Joint Institutes
- Big Data sharing agreements and research

*What do we want to do together?*

# LANL facilities host university visitors and foster collaborations

National High Magnetic Field Lab

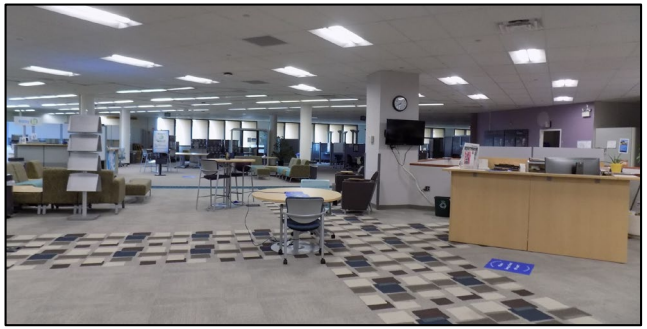


Los Alamos Neutron Science Center

Center for Integrated Nanotechnologies


Los Alamos Research Park

...and more!



Oppenheimer Study Center

# Discussion and Questions